* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.**** shows the word which can not be translated.

3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]Especially this invention relates to confidentiality reservation of output documents about a printer.

[0002]

[Description of the Prior Art]In the conventional network type printer, two or more users (information processing terminal) are doing share use, and various users are performing data output to the paper output tray. Therefore, most confidentiality of output documents cannot be found, and if it does not go to take immediately the text which the user outputted, there is a risk of the contents being seen by other users.

[0003]Therefore, unless it prepared the paper output tray which established the locking mechanism and the locking mechanism was canceled, confidentiality, such as a strictly confidential document, was secured by preventing from taking out output documents from the paper output tray.

[0004]In JP,7-195798,A and a JP,2000-10442,A gazette. During printing of the data in which confidentiality is thought as important, the door opened and closed at the time of jam processing is locked, and at the time of a jam occurrence, by the composition to which release of a lock is carried out by the directions from a specific user, even if it is at the jam occurrence time, the device which can prevent disclosure of the data printed by the print sheet is indicated.

[0005]

[Problem(s) to be Solved by the Invention]Although the composition to which release of the above-mentioned door lock system is permitted only to a specific user to the jam by which it was generated in the paper conveying path after data printing was performed to the print sheet for the leakage control of printing data is effective, Concern of a printing data disclosure

according to a jammed paper to the jam by which it was generated before data printing was performed to the print sheet is unnecessary.

[0006]However, when it is generated by jam in the above-mentioned conventional example during printing of the data in which confidentiality is thought as important, Since it has the composition that other users cannot use a printer until release of the jammed paper by a user specific irrespective of the kind of jam by which it was generated is performed, Other user printers could not be used until the jam processing by a specific user was completed, even if it was a case where there was no concern of the printing data disclosure by a jammed paper, but it had become an inefficient thing which has very bad user-friendliness.

[0007]Paying attention to the point, accomplished this invention above, and For the leakage control of a confidential-documents printed paper, It aims at providing the printer which makes it possible to prevent the printed confidential documents from the others seeing even if it is a case where it is generated by jam within a printer, and to take the procedure of quick jam release to the anxious jam of disclosure which is not.

[0008]

[Means for Solving the Problem]This invention can solve an aforementioned problem by having the following composition.

[0009](1) A means to perform a printing job according to an inputted printing demand, and a means to distinguish whether print data by which the printing demand was carried out are security data, In a printer which has a means to lock a door section opened and closed at the time of jam processing, and a means to detect a place of jam by which it was generated in a print sheet carrying path, A printer controlling operation of a means to lock said door section, based on a detection result of a means to detect a place which said jam generated when generated by jam during a printing job of print data distinguished in said discriminating means as it is security data.

[0010](2) A printer characterized by locking a door section by a means to lock the above-mentioned door section when it is generated by jam with a print sheet among a print sheet carrying path in a printer of the aforementioned (1) statement at a place which can check the contents of print data.

[0011](3) A printer characterized by not locking a door section by a means to lock the above-mentioned door section when it is generated by jam with a print sheet among a print sheet carrying path in a printer of the aforementioned (1) statement at a place which cannot check the contents of print data.

[0012](4) A means to perform a printing job according to an inputted printing demand, and a means to distinguish whether print data by which the printing demand was carried out are security data, In a printer which has a means to lock a door section opened and closed at the time of jam processing, a means to cancel a lock of a door section opened and closed at the

time of jam processing, and a means to detect a place of jam by which it was generated in a print sheet carrying path, During a printing job of print data distinguished in said discriminating means as it is security data, When a door section is locked by a means to lock said door section and it is generated by jam during a printing job, A printer which controls operation of a means to lock said door section, based on a detection result of a means to detect a place which said jam generated, and is characterized by canceling a lock of a door section by a means to cancel a lock of said door section at the time of an end of a printing job.

[0013](5) A printer characterized by locking a door section by a means to lock the above-mentioned door section when it is generated by jam with a print sheet among a print sheet carrying path in a printer of the aforementioned (4) statement at a place which can check the contents of print data.

[0014](6) A printer characterized by not locking a door section by a means to lock the above-mentioned door section when it is generated by jam with a print sheet among a print sheet carrying path in a printer of the aforementioned (4) statement at a place which cannot check the contents of print data.

[0015](7) A means to perform a printing job according to an inputted printing demand, and a means to distinguish whether print data by which the printing demand was carried out are security data, A means to attest a user who performed a printing demand, and a means to lock a door section opened and closed at the time of jam processing, In a printer which has a means to cancel a lock of a door section opened and closed at the time of jam processing, and a means to detect a place of jam by which it was generated in a print sheet carrying path, During a printing job of print data distinguished in said discriminating means as it is security data, When a door section is locked by a means to lock said door section and it is generated by jam during a printing job, Based on a detection result of a means to detect a place which said jam generated, control operation of a means to lock said door section, and At the time of an end of a printing job. Or a printer canceling a lock of a door section by a means to cancel a lock of said door section when a user who performed a printing demand by said means to attest is attested.

[0016](8) A printer characterized by locking a door section by a means to lock the above-mentioned door section when it is generated by jam with a print sheet among a print sheet carrying path in a printer of the aforementioned (7) statement at a place which can check the contents of print data.

[0017](9) A printer characterized by not locking a door section by a means to lock the above-mentioned door section when it is generated by jam with a print sheet among a print sheet carrying path in a printer of the aforementioned (7) statement at a place which cannot check the contents of print data.

[0018]

[Embodiment of the Invention]Below, with reference to drawings, the suitable example concerning this invention is described in detail.

[0019]Drawing 1 is a drawing in which the structure of the laser beam printer which is a printer of this invention is shown.

[0020]One shows a laser beam printer main part (LP gas main part) among drawing 1. The conveyance system of a paper is explained first. 2 is an upper sheet paper cassette, 3 is a lower sheet paper cassette, and it has a sheet paper cassette of two steps of upper and lower sides. Feed Collo for feed Collo for 4 to take up a paper from the sheet paper cassette 2 and 5 to take up a paper from the sheet paper cassette 3, 6 and 7, respectively for feeding paper to a paper from the sheet paper cassettes 2 and 3 Two pairs of feed rollers, One pair of resist rollers with which 8 controls the feeding timing of the paper to which paper was fed, The fixing assembly to which the paper in which 9 was conveyed with the transportation belt and 10 was conveyed with the transportation belt 9 is fed, The sending-out roller which sends out the paper with which 11 passed the fixing assembly 10, and 12, 13 and 14 are the transportation rollers for conveying a paper, respectively, and the paper sent out from the transportation roller 14 is delivered to the paper output tray 15.

[0021]16-19 are individual administrative delivery boxes in which each has a locking mechanism individually. It is for choosing whether 20 is delivered to the appointed delivery box by being a paper course changing nail and changing the conveyance course of the print sheet sent out from the sending-out roller 12, or paper is delivered to the paper output tray 15. In the print mode of the confidential documents which the delivery place of a print sheet mentions later, a print sheet is delivered to either of the above-mentioned delivery boxes 16-19.

[0022]21 is an OPC photo conductor drum, it is provided in the carrying path upper part between the resist roller 8 and the transportation belt 9 pivotable, and the transfer charger 22 is formed in the OPC photo conductor drum bottom.

[0023]The electrifying charger by which 23 was provided in the photoconductive drum upper part, the toner cartridge by which, as for 24, a development unit and 25 supply the toner which is a printing medium to a development unit, and 26 are cleaning units which clean the surface of the photoconductive drum 21.

[0024]27 is a laser write-in unit, a laser beam is irradiated by the surface of the photoconductive drum 21 from here, and an imaging pattern is formed in a photoconductive drum side.

[0025]28-33 are the photosensors for form detection formed in the carrying path of the paper.

[0026]34 shows the control section of this device and controls reception of the print data mentioned later, printing control of print data, and operation of this whole device.

[0027]The print operation of this device is explained below.

[0028]The control section's 34 reception of the image data from host machines, such as a host

computer which this device does not illustrate, etc. will start a print sequence. If a print sequence is started, either of the feed rollers 4 and 5 will be driven to predetermined timing, Feeding is started from that from which the upper sheet paper cassette 2 and the lower sheet paper cassette 3 were chosen either, and it feeds with a paper with either of the feed rollers 6 and 7, and is made to halt in the state where it dashed against the resist roller 8. The photosensors 28 and 29 are formed between the feed rollers 6 and 7 and the tray JISUTO roller 8, and the check of the conveying state of the paper to which paper was fed with reference to the output of photosensor is performed. After starting the drive of the feed roller 4 or 5, when detection of a conveyance paper is not carried out by the photosensor 28 or 29 into predetermined time, or when the detecting state of a conveyance paper continues beyond over predetermined time, it will be judged as what the paper jam generated.

[0029]On the other hand, drawing 1 rotates the photo conductor drum 21 to the direction indicated by the arrow, and the surface is charged with the charging part charger 23. The electrified photoconductive drum surface glares, while the laser beam modulated according to image data from the laser writing unit 27 scans to a drum axial direction, and a latent image is formed in it. The latent image is developed by a toner with the development unit 24. The transfer charger 22 is operated to the paper with which it is fed to predetermined timing by the resist roller 8, and the toner image developed on the photoconductive drum surface is transferred in a paper. The photosensor 30 is formed in the output side of the resist roller 8, and the check of the print sheet which passed the resist roller is performed to it here. From the conveying operation start of the paper by the resist roller 8, when detection of a print sheet is not carried out into predetermined time, or when the detecting state of a conveyance paper continues beyond over predetermined time, it will be judged as what the paper jam generated.

[0030]The paper transferred by the operation of the transfer charger 22 exfoliates from the photo conductor drum 21, and after being conveyed to the fixing assembly 10 and carrying out heat fixing by the fixing assembly 10 with the transportation belt 9, it is sent out with the sending-out rollers 11 and 12 to a delivery unit.

[0031]In that case, by the position of the paper course changing nail 20, the course of a paper is chosen and paper is delivered to either of the delivery boxes 16-19, or either of the paper output trays 15. Among the sending-out rollers 11 and 12 in the middle of the transportation belt 9, and among the sending-out rollers 13 and 14, the photosensors 31, 32, and 33 are formed, respectively, and the check of the conveying state of the print sheet in each position on a carrying path is performed. When detection of a print sheet is not carried out into predetermined time by the photosensors 31, 32, and 33, or when the detecting state of a conveyance paper continues beyond over predetermined time, it will be judged as what the paper jam generated. Control concerning the operation mentioned above is performed by the control section 34.

[0032]Next, the control section 34 of this device is explained.

[0033]Drawing 3 shows the control block diagram of the control section 34 of this device mentioned above. 200 show the network connected to this device among drawing 3, and 300 is the host computer connected to this device via the network 200. Directions of the print operation to this device are performed via the network 200 from the host computer 300. A communication control part for 201 to transmit and receive data via a network and 202 are the printing-data control sections connected to the communication control part 201.

[0034]Here, the file format of the print data transmitted from the host computer 300 is shown in drawing 7. The file format of print data consists of the document attribute part 710 and the printing-data part 720. In order that the document attribute part 710 may identify to only the owner of the job name 701 which described the name of the print job, the protection attribute 702 which described whether confidential printing (strictly confidential treatment) would be carried out, and print data files, It consists of the user-identification child 703 who comprises an alphanumeric-characters sequence, and the data size 704 which described the capacity of the printing data 720. If the file of the above-mentioned print data is inputted into the communication control part 201, the communication control part 201 will output the data of the printing-data part 720 to the printing-data control section 202. From the inputted data of the printing-data part 720, printing data are generated and the laser driving part 203 which drives the laser of the laser writing unit 27 based on printing data is controlled by the printing-data control section 202. While outputting to the locking mechanism control section 206 which 204 is a print error primary detecting element, and mentions later the existence and the detected error information of the error generated with this device, It transmits to the host computer 300 which directed print operation via the communication control part 201 and the network 200. 205 is a judgment part of a printing mode and the protection attribute 702 in the file format of the print data directed with the personal computer 300 is distinguished, The printing mode in print operation extracts that judgment which is usually a printing mode or is a confidential printing mode which thinks the confidentiality of a print output as important, and the user-identification child 703 in a printing file format. The decision result of whether to be a confidential printing mode is outputted to the locking mechanism control section 206 and the delivery unit selecting part 207. The extracted user-identification child 703 outputs to the delivery unit selecting part 207 and the attestation control section 208. The error information which 206 is a locking mechanism control section and is outputted from the print error primary detecting element 204, Locking of the door of this device opened and closed when performing 100 of drawing 2 and jam processing of this device shown in 101 according to that decision result which is a confidential printing mode outputted from the judgment part 205 of a printing mode, and the output signal from the attestation control section 208 mentioned later is controlled.

[0035]The delivery unit selecting part 207 chooses the delivery place of a print output paper from either the paper output tray 15 or the individual administrative delivery boxes 16-19 according to the discriminated result and the user-identification child 703 of the protection attribute 702 inputted from the printing mode judgment part 205. When a protection attribute is not a confidential printing mode, the paper output tray 15 is chosen, and when it is a confidential printing mode, either of 16-19 which are the delivery units of individual management will be chosen based on the user-identification child 703. The information of the delivery unit selected by the delivery unit selecting part 207 and a user-identification child is outputted to the delivery unit-lock mechanism control section 211. In the delivery unit-lock mechanism control section 211, when either of the individual administrative delivery boxes 16-19 is chosen as a delivery unit, while matching and remembering the selected individual administrative delivery box and user-identification child, it locks by controlling the locking mechanism of the selected individual administrative delivery box. Based on the user-identification child information from the attestation control section 208 mentioned later, control of which locking of a corresponding individual administrative delivery box is canceled is performed.

[0036]208 is an attestation control section which attests the operator of this device, and the input part 209 for a user-identification child to be inputted from the printing mode judgment part 205 mentioned above, and for an operator input a password, ID, etc. further is connected. The attestation control section 208 distinguishes the coincidence disagreement of the data which the operator inputted as the user-identification child inputted from the printing mode judgment part 205 from the input part 209, and outputs a discriminated result to the locking mechanism control section 206.

[0037]The information of the user-identification child who is in agreement with the data which the operator inputted from the input part 209 is outputted to the delivery unit-lock mechanism control section 211. 210 is a paper conveyance control section and is a paper conveyance control section which controls conveyance of a print paper according to the directions from the communication control part 201 which received the print operation directions from the host computer 300.

[0038]Next, operation of this device is explained using drawing 4 and the flow chart of 5 and 6.

[0039]Drawing 4 shows an operation flow with the personal computer 300, and drawing 5 and drawing 6 show the operation flow of this device.

[0040]Among drawing 4, if directions of printing are performed in S1, it will be judged whether it is the confidential printing mode in which the mode of printing directed in S2 thinks the confidentiality of a print output as important. When judged with it being in confidential printing mode, in S3, attribute setting of confidential printing is carried out to the protection attribute 702 in the printing file format mentioned above, and a flow progresses to S4. When judged

with it not being in confidential printing mode in S2, attribute setting of confidential printing is not performed in S3, but a flow progresses to S4. In S4, transmission of print data is performed by the file format of the print data shown in drawing 7 via the network 200. The alphanumeric character string which the file name which performed printing directions was set up and the user who performed printing directions set up arbitrarily as a user-identification child is set to the job name 701 in the file format of the print data shown in drawing 7. The data volume of the file which performed printing directions is set to the data size 704.

[0041]Next, operation of this device which received the print data transmitted from the host computer according to drawing 5 is explained. If the communication control part 201 of this device receives print data in S5, the printing mode judgment part 205 will distinguish the contents of the protection attribute 702 in print data in S6, and it will be distinguished whether confidential printing mode is set up. When confidential printing mode is set up, a flow progresses to S7, according to the user-identification child outputted from the printing mode judgment part 205, the position of the paper course changing nail 20 in drawing 1 is controlled by the delivery unit selecting part 207, and either of the delivery units of individual management is chosen.

[0042]Next, it forbids locking the door section of this device opened and closed at the time of the jam processing of a print paper, and opening a door by the locking mechanism control section 206, in S8. When confidential printing mode was not set up in S6 and it is distinguished, a flow progresses to S9 from S6, the position of the paper course changing nail 20 in drawing 1 is controlled by the delivery unit selecting part 207, and the delivery unit 15 is chosen as a delivery unit here. In S10, while conveyance of a print paper is controlled, laser driving based on printing data is performed by the printing-data control section 202, and the printing sequence of printing data is started by the paper carrying part 210.

[0043]It is distinguished whether the printing sequence was completed normally, checking the carrying state of a print paper with the photosensors 28-33 mentioned above in S11, if a printing sequence is started (S11).

[0044]When normal termination is carried out, a flow progresses to S12, locking of a door section performed by the locking mechanism control section 206 in Step 8 is canceled, and a flow is ended. When the jam which is the abnormalities of the carrying state of a print paper is detected by the photosensors 28-33 in S11 in the print error primary detecting element 204, the flow of exception processing which a flow follows to S13 and is shown in drawing 6 is performed.

[0045]When jam is detected in the print error primary detecting element 204, the print error primary detecting element 204 notifies an abnormal condition to the host computer 300 via the communication control part 201 and the network 200 (S21).

[0046]Next, it is distinguished whether the protection attribute of the print data which received

printing directions in S22 is in confidential printing mode, and in not being in confidential printing mode, it progresses to S25.

[0047]When confidential printing mode is set up in S22, it progresses to S23 and the abnormalities which the print error primary detecting element 204 detected distinguish where [of the photosensors 28-33] it generated. When the error from which the photosensor 30 does not detect a print sheet in predetermined time is detected, The error which detection of the paper by the photosensor 30 continues beyond in predetermined time before the toner image by which the jam position was formed in the photoconductive drum is transferred by the print sheet, Or when an error is detected with either of the photosensors 31-33, a jam position is distinguished the transfer back and a discriminated result is outputted to the locking mechanism control section 206 by the print error primary detecting element 204.

[0048]When the jam position of the paper was not after transfer and it is distinguished in S23, a flow progresses to S25, and when distinguished the transfer back, it progresses to S24.

[0049]In S24, it is distinguished whether the attestation control section 208 of the password entered from the input part 209 corresponds with the user-identification child inputted from the printing mode discrimination section 205. When the entered password is not in agreement with a user-identification child, or when there is no input of a password, a flow repeats S24 and stops it here.

[0050]When the entered password is in agreement with a user-identification child, it progresses to S25 and locking of a door section performed by the locking mechanism control section 206 is canceled in Step 8 here.

[0051]Then, release of a jamming form is performed in S26, and if it is distinguished whether the conveying path of the paper was recovered normally and it is distinguished as having recovered, it will follow a flow to S27. As mentioned above, when it generates in the paper carrying path after the toner image by which the jam at the time of confidential printing mode setting was formed in the photoconductive drum was transferred by the print sheet, Unless the user-identification child and input password by the attestation control section 208 are in agreement, in order not to cancel a door lock, Exposing the printed pattern formed in the print sheet leading to a jam occurrence to an unspecified person's eyes is avoided, and only the operator who can enter the password which is in agreement with the user-identification child in a printing file format cancels a door lock, and it becomes possible to process a jammed paper.

[0052]In S23, when the jam position of the paper was not after transfer and it is distinguished, it progresses to S25 and locking of a door section is canceled. However, even if it is in this case, in order to prevent disclosure of the contents of a print by the latent image formed in the photoconductive drum 21, after cleaning the latent image formed in the photoconductive drum, release of door section locking is controlled by that it will be carried out.

[0053]There is no fear of a printed pattern being exposed to an unspecified person's eyes by

cleaning the latent image which a printed pattern was not formed in the print sheet, and was formed in the photoconductive drum from S23 when a flow resulted in S25.

[0054]Processing of a quick jammed paper becomes possible to anyone by performing release of door section locking, without waiting for coincidence of password input.

[0055]It is distinguished whether printing performed after canceling a jamming form and making recovery of a conveying path in S27 is in confidential printing mode, and in being in confidential printing mode, like [S28] S8 of drawing 5, a door lock is performed, a flow is ended at the time of exception processing, and it resumes a flow from S10 of drawing 5.

[0056]The printed paper with which the print was performed in confidential printing mode is delivered to the individual management delivery unit selected in S7 of drawing 5.

[0057]As mentioned above, an individual delivery management unit is an individual administrative delivery box which has a locking mechanism individually, and it is constituted so that a print result cannot be checked from the exterior. Release of the locking mechanism of this individual delivery management box is explained below.

[0058]If it is distinguished by the proof control section 208 that the password entered from the input part 209 in drawing 3 is in agreement with the user-identification child inputted from the printing mode discrimination section 205, release of the locking mechanism of an individual delivery management box, The signal for canceling the locking mechanism of the delivery unit corresponding to the user-identification child inputted into the delivery unit-lock mechanism control section 211 from the attestation control section 208 is outputted. In the delivery unit-lock mechanism control section 211, the locking mechanism of the delivery unit corresponding to a user-identification child is canceled according to the signal of lock release.

[0059](Other examples) The arrangement place of the photosensor which is a detection means of the jam occurrence place in the above-mentioned example should just be a place which whether the jam by which is not limited to the part mentioned above and it was generated is a position whose check of print data is attained with a print sheet can distinguish.

[0060]Although the printer in the above-mentioned example showed the example of LBP which used the electrophotographying system, printing methods may be an inkjet method, a thermal method, a dot impact method, etc., and are not limited to a printing method.

[0061]Although attestation by coincidence of the data which the user inputted as the user-identification child in a printing data format is performed and the door lock system is canceled in the above-mentioned example, If the method of attestation is the method of attesting the operator who is not limited to this and published the print job, it is [anything] good.

[0062]

[Effect of the Invention]As explained above, according to this invention, even if it faces generating of a paper jam, it becomes possible for confidentiality, such as a strictly confidential document, to to be not only fully securable, but to become possible to perform quick jam

processing, when confidentiality reservation is unnecessary, and to use a printer effectively.

[Translation done.]